



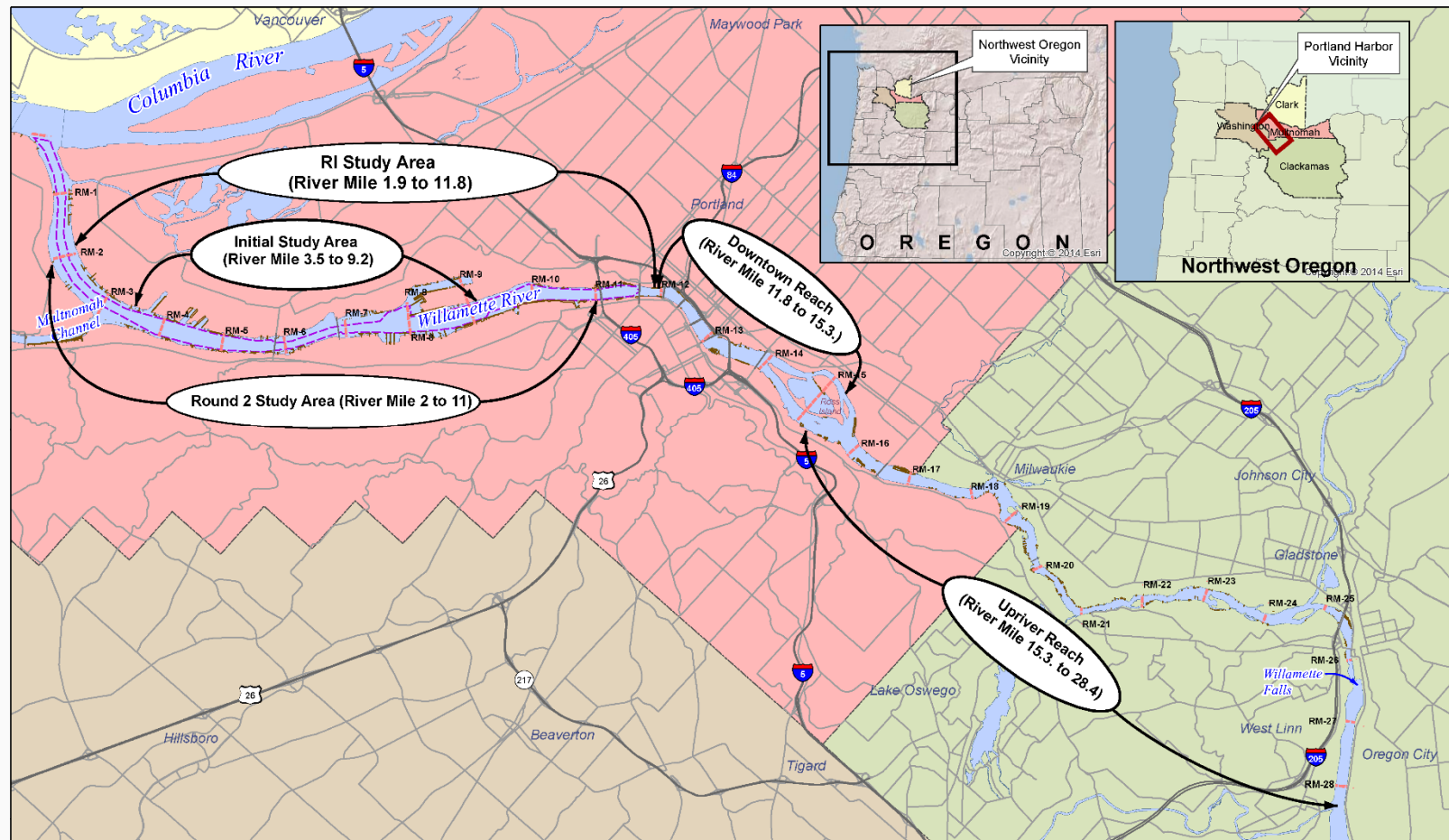
Portland Harbor Superfund Site

Presentation to the
PCI Group
June 30, 2016

Kristine Koch, U.S. EPA Region 10



Lower Willamette River





Key Parts of Portland Harbor Cleanup





Basis for Action

- Unacceptable risk to human health
 - Most exposure/risk – fish consumption
 - PCBs and dioxins/furans site wide
 - DDx and PAHs on localized scale
- Unacceptable risk to ecological receptors
 - Focus on Ecological Significance
 - Most risk to birds, fish, and mammals – fish consumption
 - Benthic risk – primarily groundwater, pesticides and metals



Contaminants

- 64 Contaminants of Concern (COCs)
 - Sediment/river banks (24)
 - Biota (17)
 - Surface Water (27)
 - Pore Water (groundwater) (39)



Focused COCs

- Focused COCs
 - PCBs
 - PAHs
 - DDx
 - Dioxins/Furans
- Most widespread
- Most associated risk
- Addresses other COCs



Example Remedial Action Level Curve

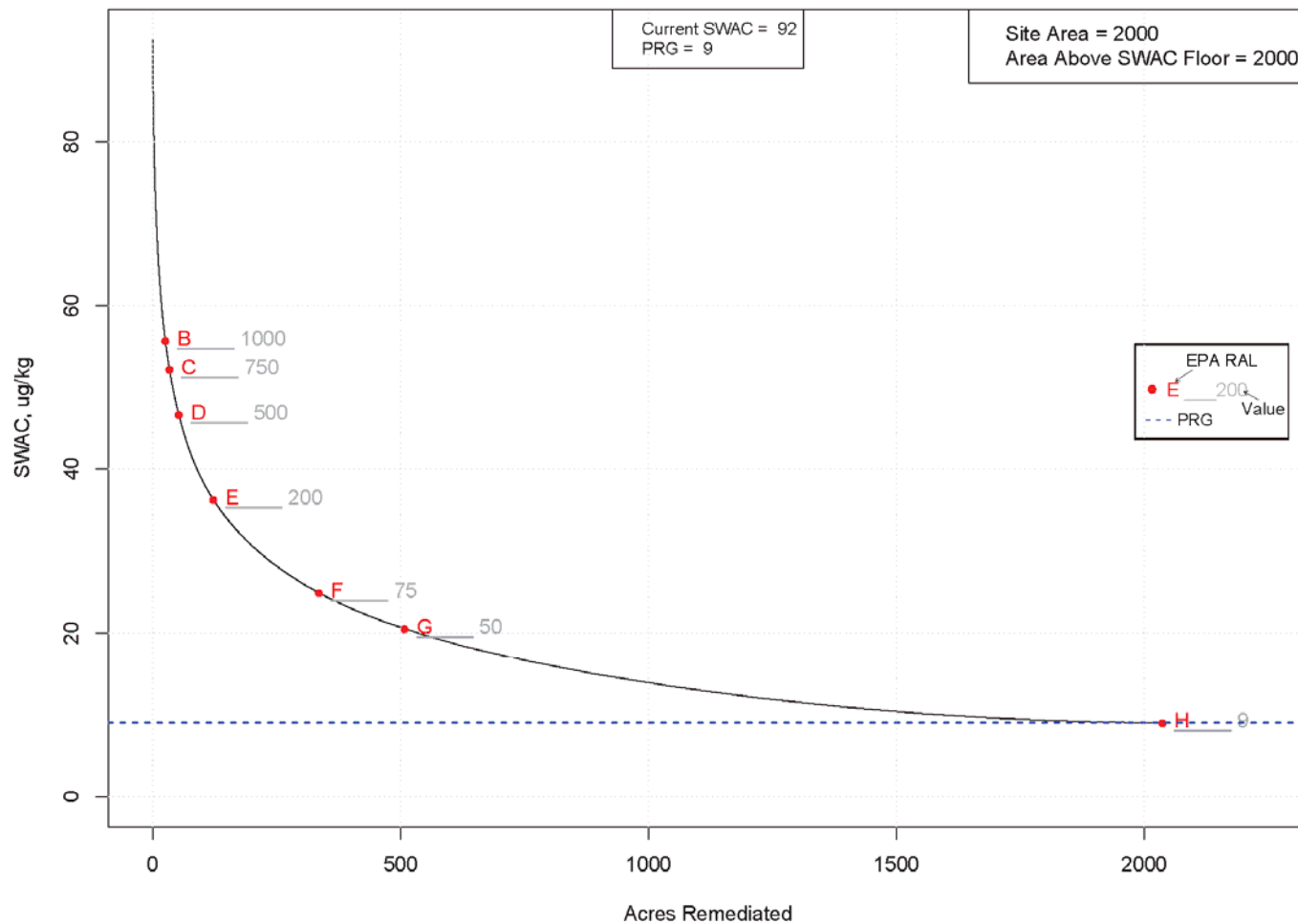
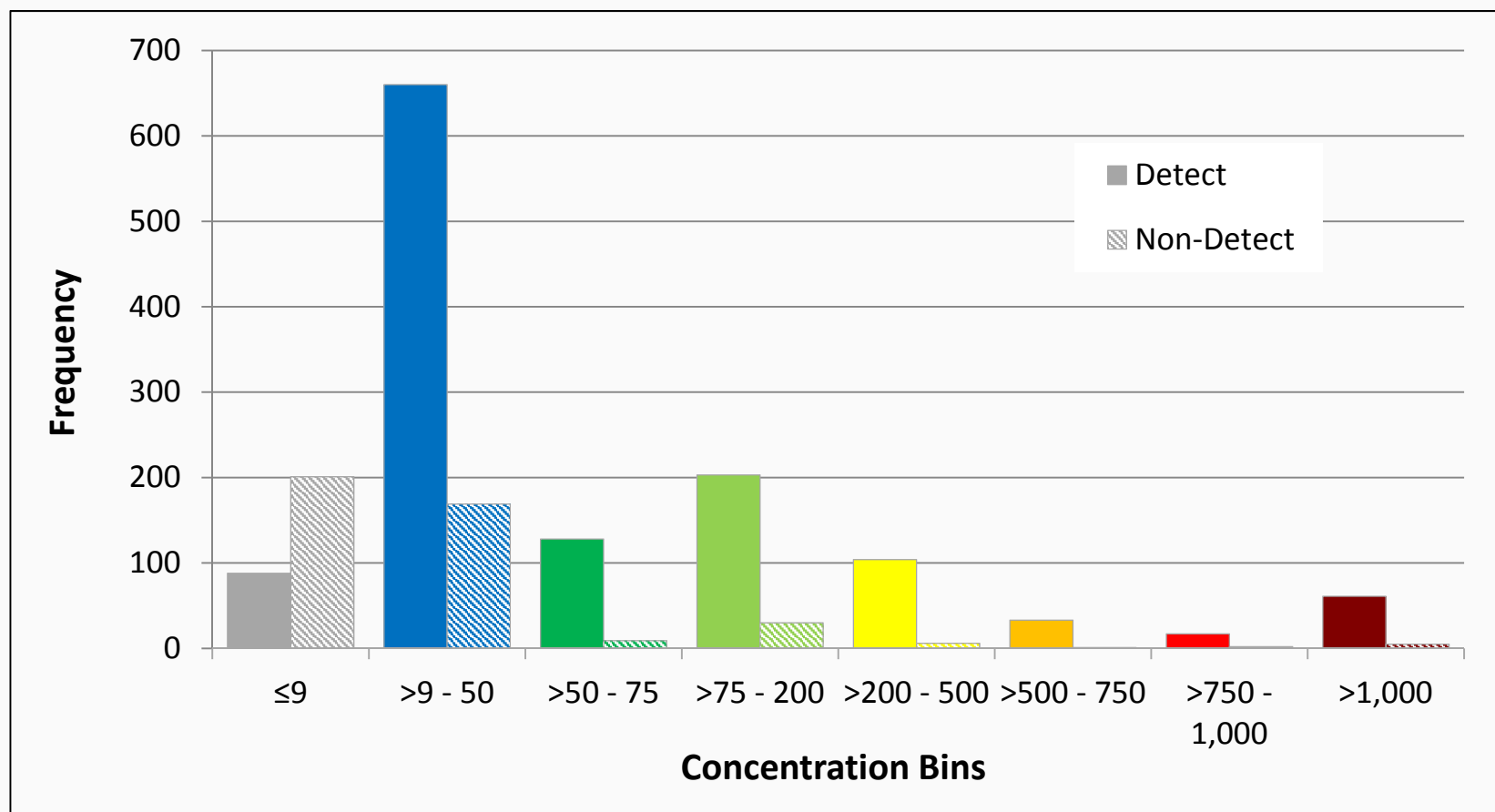


Figure 3.4-1. PCBs Site-wide RAL Curve



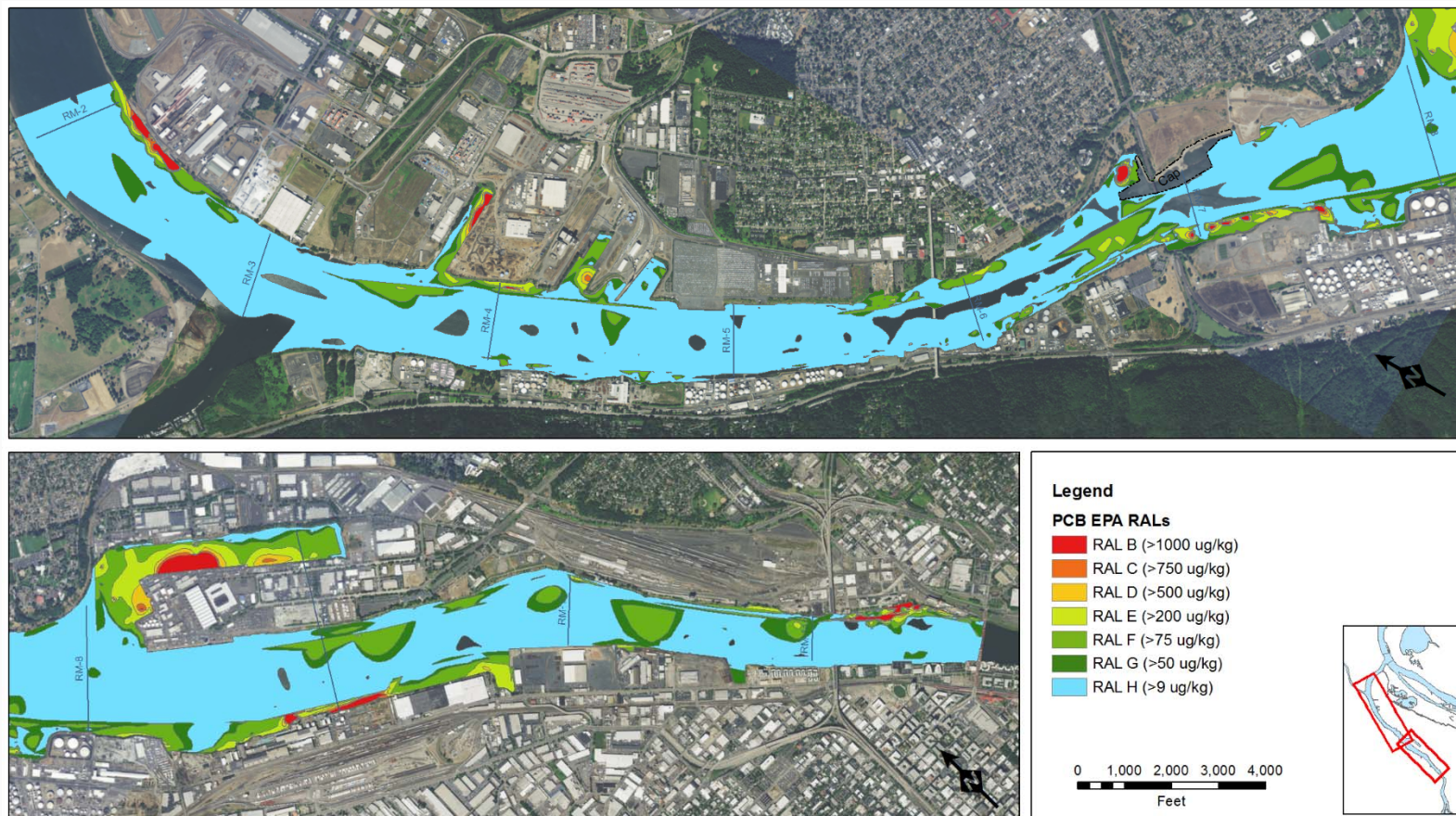
Example of Contaminant Distribution



PCBs

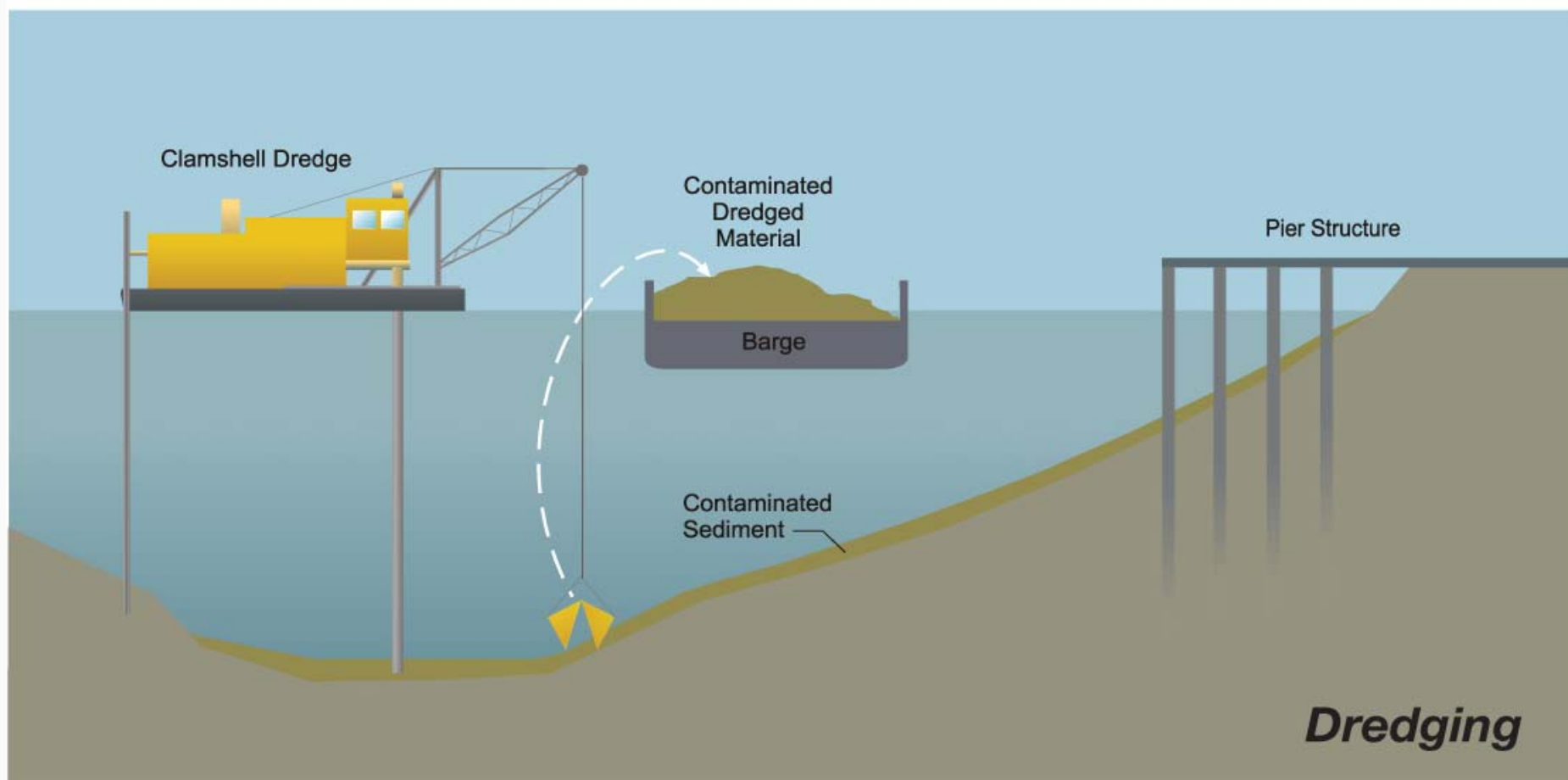


Example of Contaminant Distribution



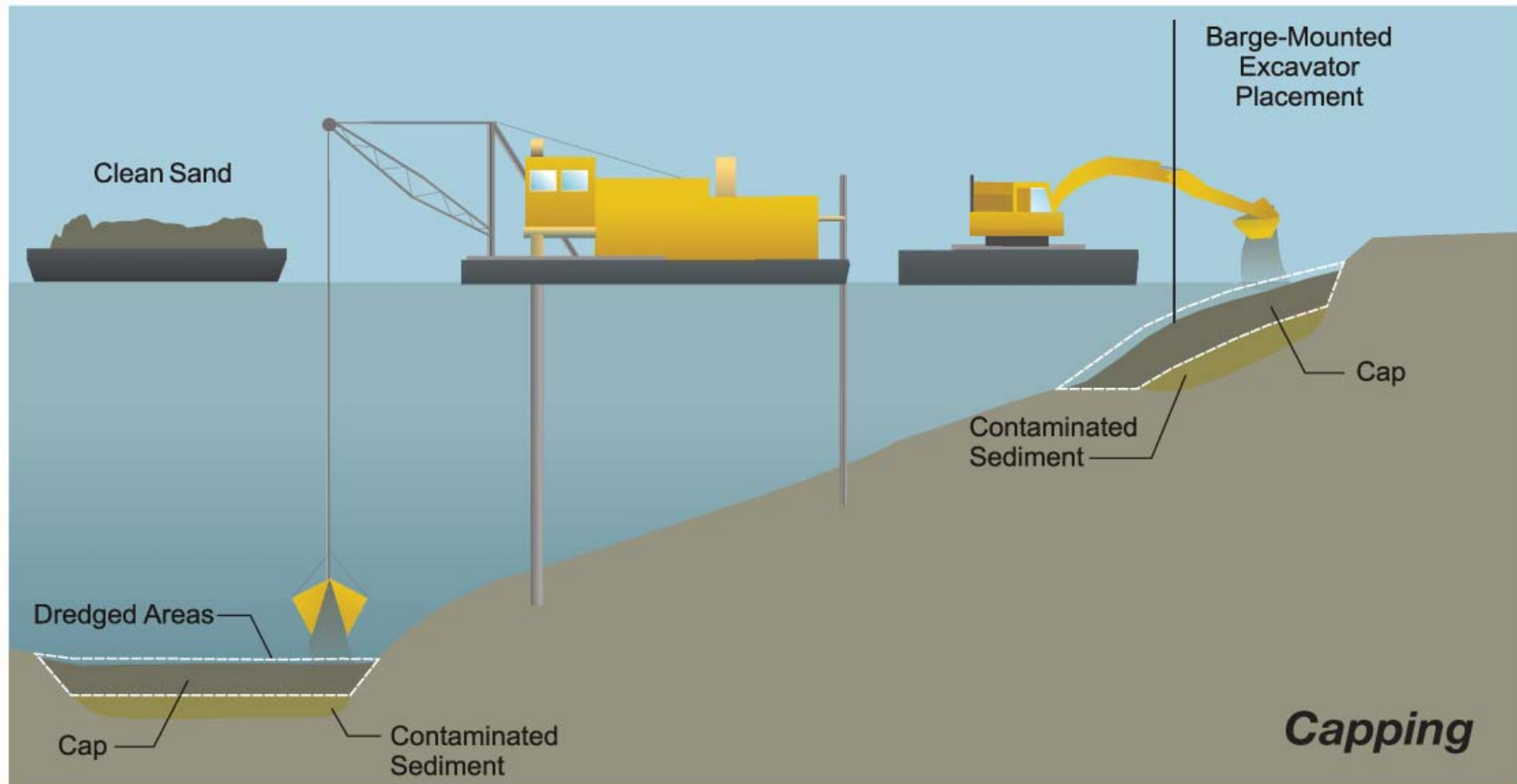


Removal





Containment

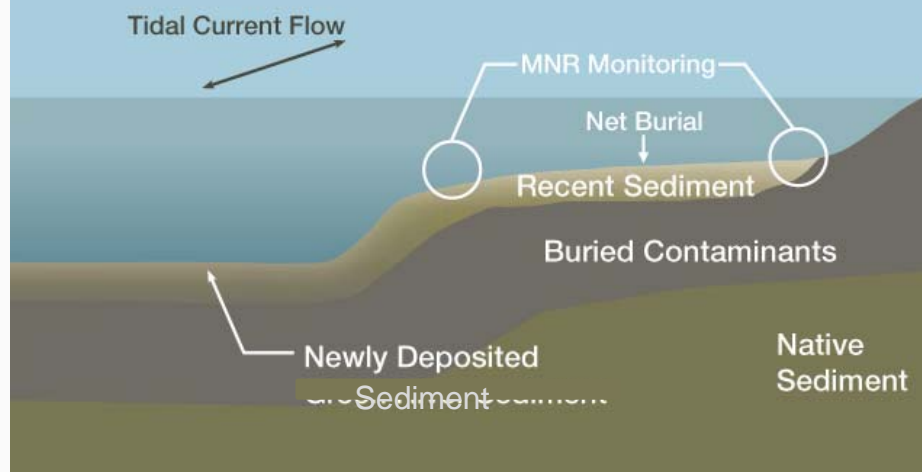




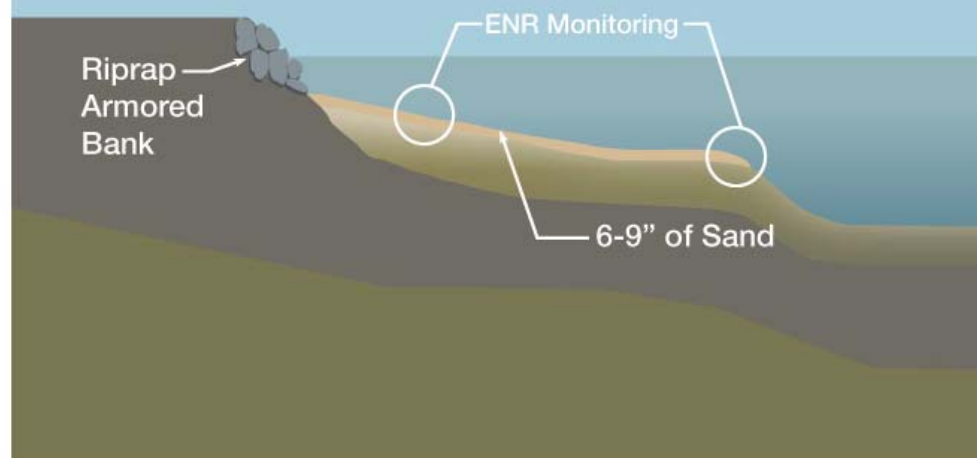
Natural Recovery



Monitored Natural Recovery (MNR)



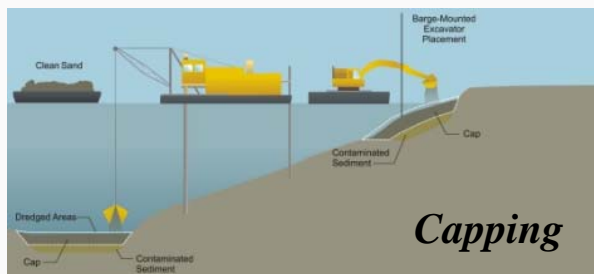
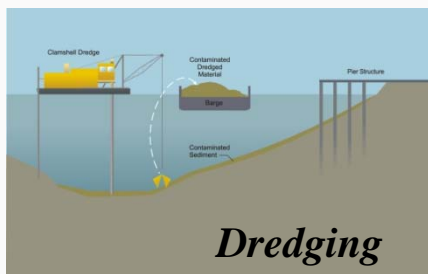
Enhanced Natural Recovery (ENR)



ALL ALTERNATIVES



Are Different Combinations of:



Removal

Containment

Natural Recovery





Institutional Controls

- Whole River
 - Fish consumption advisories
- Capped Areas
 - Waterway Use Restrictions or Regulated Navigation Areas (RNAs)
 - Land Use/Access Restrictions



Why Use MNR?

- Upriver Sediment Load
 - 82 percent passes through site
 - 18 percent retained
 - 277 million kg/year
 - Lower contaminant concentrations
 - Transitional River System



Evidence Evaluated for MNR

- Deposition rates – bathymetric survey
- Consistency of deposition/erosion
- Sediment grain size
- Anthropogenic factors – propeller wash
- Surface-to-subsurface sediment ratio
- Waves

Summary of Technology Assignments



Alt	Dredge Volume	Dredge Areas	Dredge/Cap Areas	Cap Areas	In-Situ Areas	ENR	MNR	Construction Timeframe	Cost
	(Cu Yd)	(Acres)	(Acres)	(Acres)	(Acres)	(Acres)	(Acres)	(Years)	(\$M)
B	659,000	72	6	23	7	100	1,966	4	451
C	790,000	87	6	30	5	97	1,948	5	497
D	1,226,000	132	11	45	3	87	1,900	6	654
E	2,204,000	204	15	66	0	60	1,838	7	804
									870
F	5,100,000	387	32	118	0	28	1,634	13	1,317
									1,371
G	8,294,000	572	47	185	0	20	1,391	19	1,731
									1,777
H	33,487,000	1632	106	535	0	0	0	62	9,446
									9,525

Preferred Alternative

I	1,855,000	167	17	64	0	60	1,876	7	746
									811

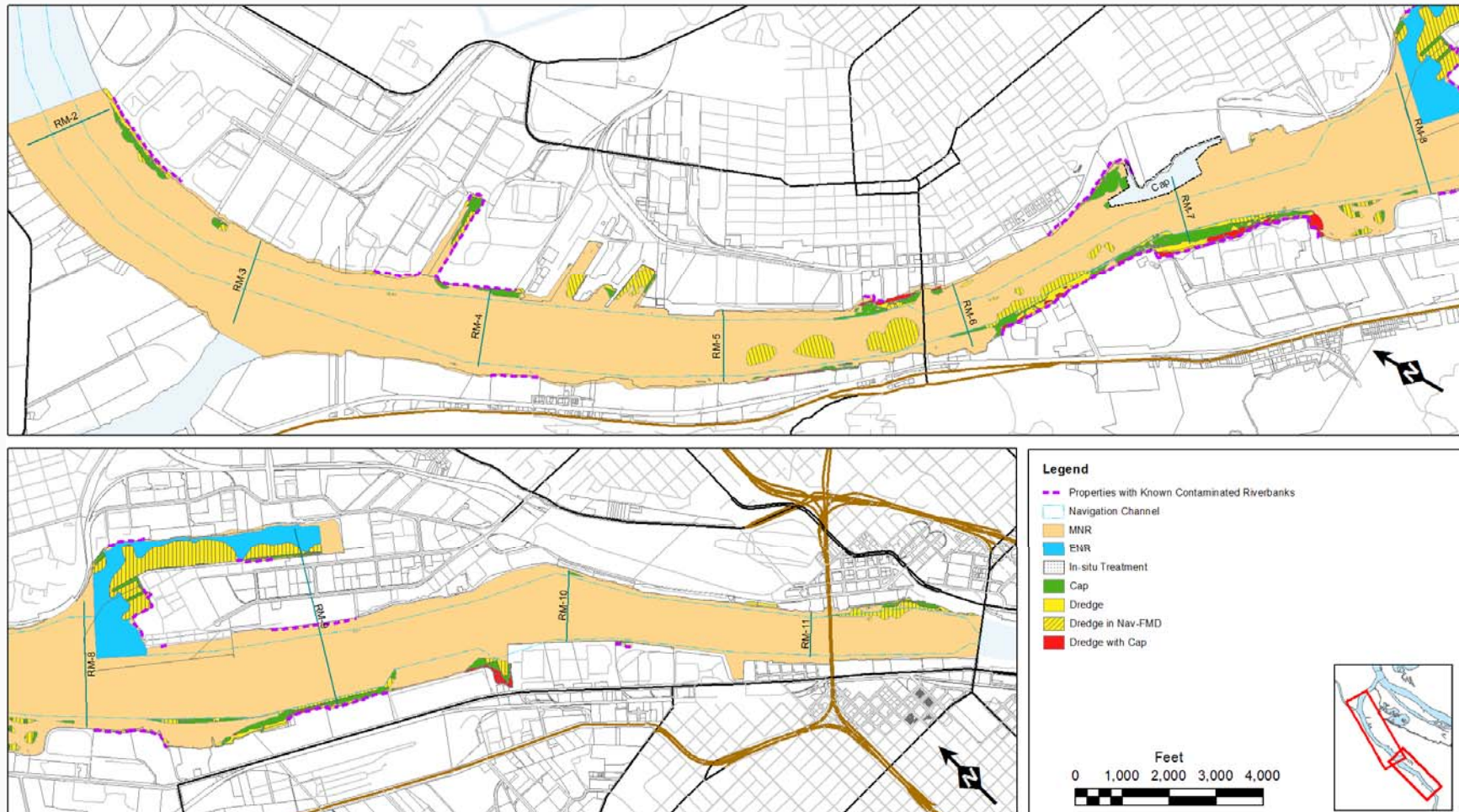


Areas Modified from Alternative E

- SDU 5.5E – Alternative F
- SDU 6.5E – Alternative B + PTW
- SDU 6NAV – Alternative B + PTW
- SDU 6W – Alternative D
- SDU 7W – Alternative F
- Areas outside SDUs – PTW only

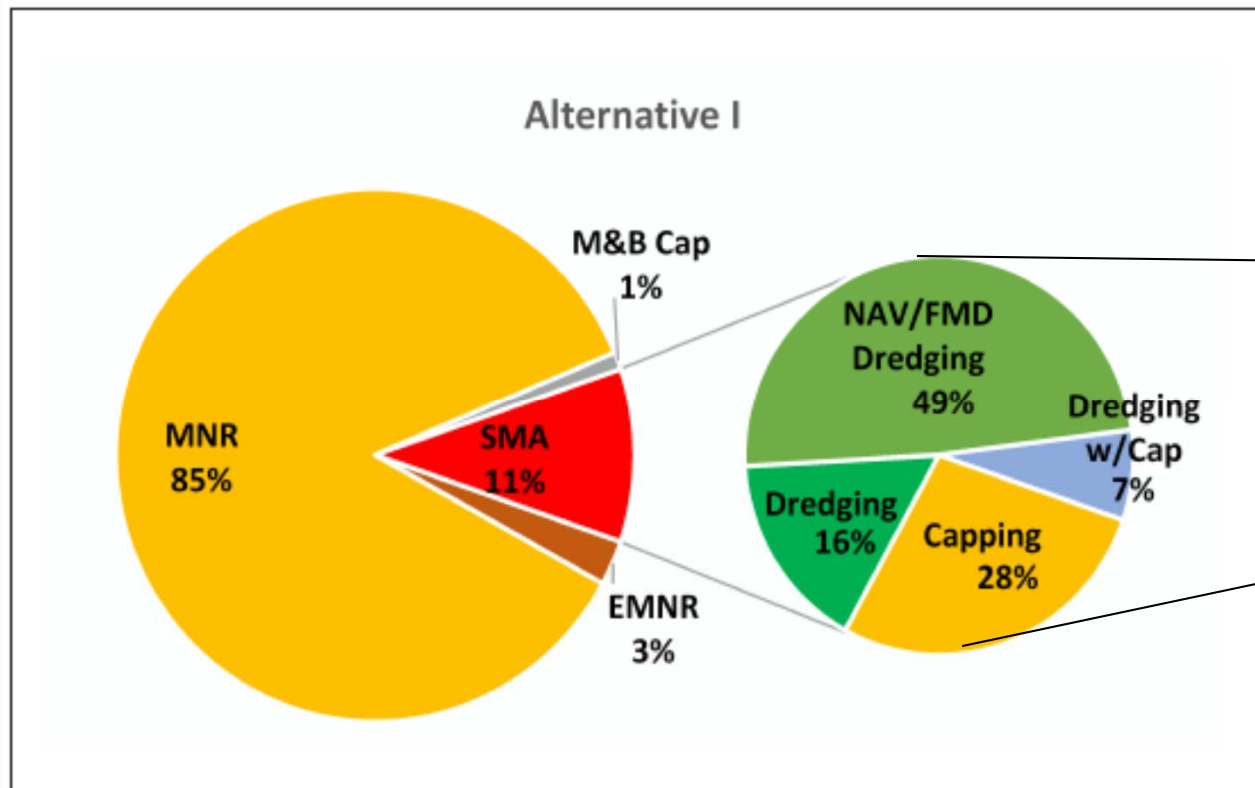


Preferred Alternative





Preferred Alternative Technologies



Addresses
85% of the
Risk



EPA's Evaluation Criteria

The Proposed Cleanup Plan must:

- Protect Human Health and the Environment
- Comply with Federal and State Environmental Laws

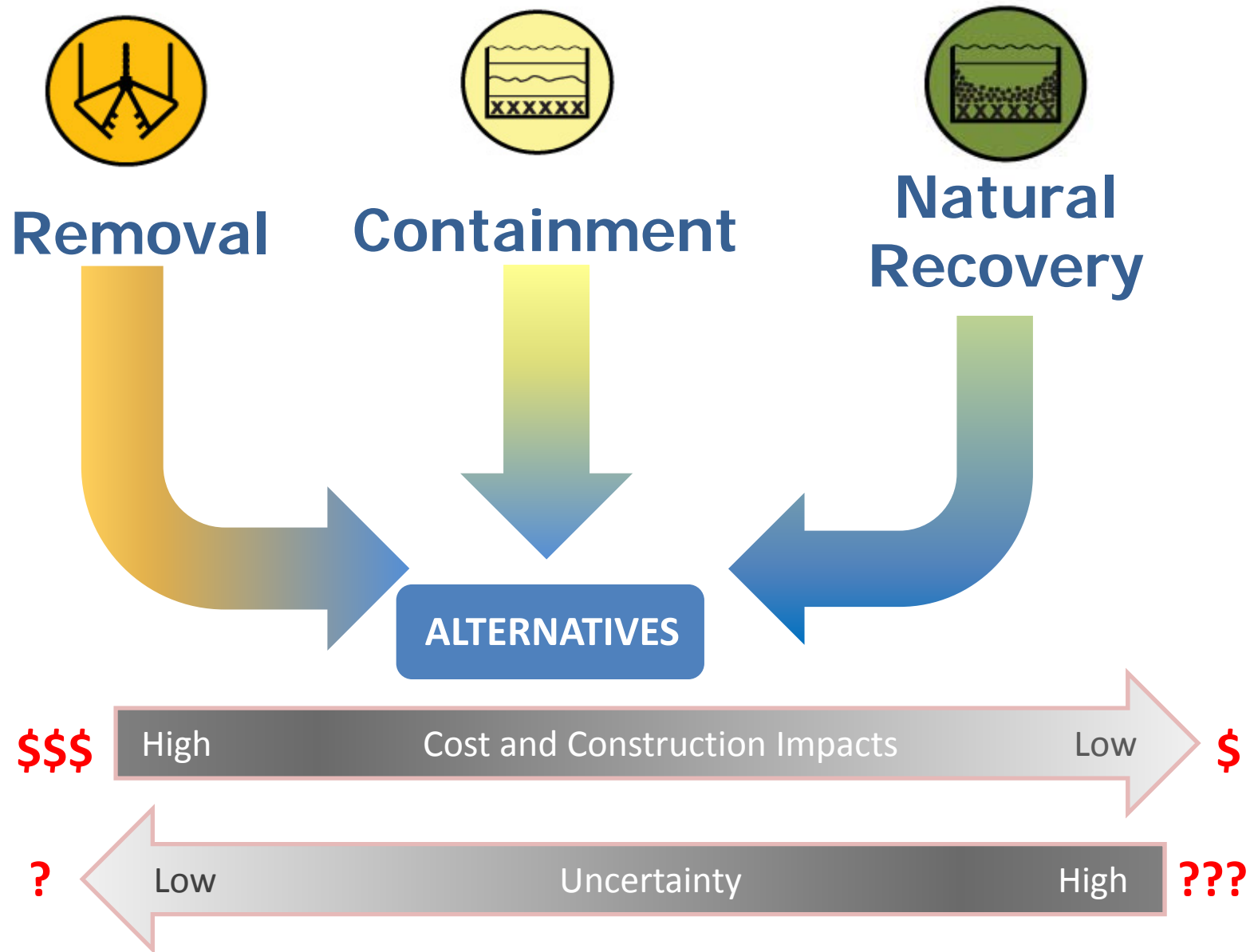
It must achieve the best balance of:

- Long-term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, and Volume through Treatment
- Short-term Effectiveness
- Implementability
- Cost

These criteria are considered after public comment period:

- State/Tribal Acceptance
- Community Acceptance

Alternatives have Different Features and Effects





Outcomes of Preferred Alternative @ t=0

- Address majority of PTW
- Minimize Institutional Controls for RAO 2
- Minimize recontamination from riverbanks
- Maintain Alternative E fish consumption rates
- Minimize river use restrictions (caps)
- More consistent risk reduction
- Reduces impacts to habitat



Tell us what you think

- Comment period: June 9 – September 6, 2016
- All documents are on EPA's web site:
<http://go.usa.gov/3Wf2B>
- Can comment by
 - e-mail
harborcomments@epa.gov
 - Mail
Attn: Harbor Comments
U.S. EPA, 805 SW Broadway, Suite 500
Portland, OR 97205
 - Electronic comment box:
<https://www.epa.gov/or/forms/comment-epas-proposed-cleanup-plan-portland-harbor-superfund-site>
 - Orally at a public meeting